Space Weather Forecast

Issued on Sunday, 14 January 2024 at 01:20 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of Moderate-class X-ray flares.
Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity is at Low levels, with background irradiance also at Common-class levels. The largest flare of the period was a Common-class flare peaking at 12/0421 UTC, attributed to region beyond the northwestern limb. There are currently fifteen sunspot regions, well distributed across the visible disc. Over the past 24 hours one small and simple region has developed in the northeast, meanwhile, a more complex region is in the process of emerging from across the eastern limb. The most complex spot region appears to be in the southwest, as part of a larger complex of sunspots. There is evidence that this larger complex may be magnetically complex and connected. There appears to be a weak delta spot on the large spot in the trailing portion of AR3541, although this is a marginal feature. Despite the large number of spots, none appear to be significantly complex at the present time, with the exception of the southwestern spot as mentioned.

No Coronal Mass Ejections (CMEs) observable on coronagraph imagery over the past 24 hours are expected to have an Earth-directed component.

Solar Wind / Geomagnetic Activity: Solar winds, as observed by DSCOVR at L1 have remained close to Elevated levels, throughout and have gradually declined from 500 km/s to 470 km/s. Between 13/1500-2300 UTC the wind trace became degraded, suggesting speeds closer to 400 km/s. However, ACE has not been tracking since 11 Jan so a comparison was not possible. The interplanetary magnetic field (IMF) has been weak throughout, with the important north-south component fluctuating weakly.

Geomagnetic activity was Quiet (Kp 0-1).

Energetic Particles / Solar Radiation: Solar radiation was at background levels.

Four-Day Space Weather Forecast Summary
Solar Activity: There is a chance of isolated Moderate-class activity and a slight chance of Strong activity, declining slightly with the departure of one of the regions in the northwest of the disc.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs currently feature in the forecast. The next feature of interest is a coronal hole just approaching centre disc in the northern hemisphere. Wind speeds of 450-500 km/s, with an arrival time late Day 3 (16 Jan) or into Day 4 (17 Jan) are expected upon connection to a stream of fast coronal winds.
Overall, geomagnetic activity is likely to be Quiet (Kp 0-2) throughout, but with a chance of Unsettled to Active (Kp 3-4) intervals on Day 4 should we see any r coronal hole fast wind influence.

Energetic Particles / Solar Radiation: Solar radiation is expected to persist at background levels. Although, there remains an ongoing slight chance of seeing an increase to the S1/Minor Radiation Storm threshold, should any notable flares occur.
Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	50	40	40	50
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.